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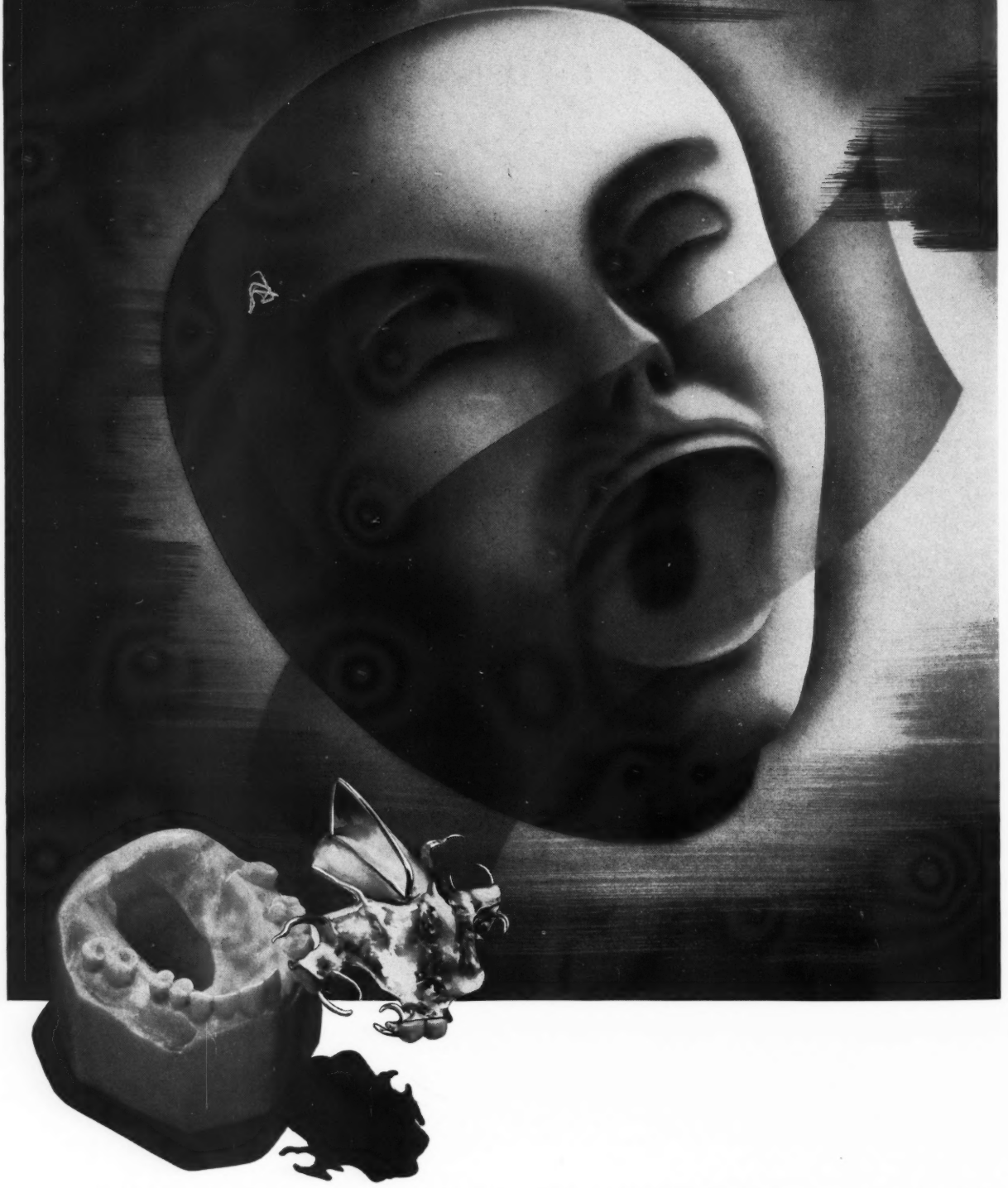

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About Our CONTRIBUTORS

CHARLES S. HELM, D.D.S. (Chicago College of Dental Surgery, 1909) is a general practitioner who makes his initial appearance in our pages this month with an article on the difficult problem of STABILIZING LOWER DENTURES.

•

ROY F. IOSET, D.D.S. (University of Minnesota College of Dentistry, 1920) is another general practitioner who is introduced to our readers for the first time. ANTERIOR DOVETAIL INLAYS is a practical article on how to do it.

•

CLAYTON J. LUNDY, M.D. (Rush Medical College, 1927; B.S., 1924 and M.S., 1925, University of Chicago) has been a frequent contributor to the medical literature and is the author of a book, OUTLINE OF ELECTROCARDIOGRAPHY, which is now in press. He is assistant professor of medicine at Rush Medical College; attending physician at Cook County Hospital and Presbyterian Hospital and to La Rabida Sanitorium for Children with Heart Disease. Doctor Lundy is a heart specialist whose cooperation was sought in presenting to our readers a few basic principles and precautions regarding heart ailments. The charts accompanying the article WHAT THE DENTIST SHOULD KNOW ABOUT ANGINA PECTORIS, CORONARY THROMBOSIS, AND ARTERIOSCLEROSIS are photostatic reproductions of large charts shown at the Scientific Exhibits, American Medical Association, and also American Dental Association. These charts will be included in Doctor Lundy's forthcoming book.

•

P. PHILIP GROSS, D.D.S. (University of Pennsylvania, 1922) will be recalled as the author of a human interest article on ALVEOLECTOMY AND IMMEDIATE DENTURE INSERTION in the case of a young girl whose pictures taken every year from the first to 16 years were shown in *Life* magazine and reproduced in THE DIGEST (October, 1938) to show the progressive malocclusion. TECHNIQUE FOR APICOECTOMY in this issue will no doubt have wider application if not such deep appeal.

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Stabilizing Lower Dentures

CHARLES S. HELM, D.D.S., Rockford, Illinois

THE AVERAGE DENTIST who has never gone through the experience of having worn dentures has not the slightest idea of what his patient undergoes in trying to master the art of manipulating these artificial appliances. It was not until about three years ago when I became edentulous that I realized the need for an improved lower denture technique. After many efforts, I found that there were many possibilities for stabilizing a lower denture and securing peripheral seal as in an upper denture.

Requisites—The following requirements must be fulfilled to accomplish stabilized lower dentures: (1) An impression technique that will seal the periphery with no muscle-tension or impingement: (2) occlusal balance; (3) proper tooth form with no cuspal interference; (4) correct design of the lingual flange; (5) formation of buccal flange with food block, and (6) a simple method of final check-up before delivering the finished denture.

Essentials about Modeling Compound—In mastering a compound impression technique, it is important for the operator to know what he wants the modeling compound to do. Most types of this material have a working range above 130°F. Unless overheated, when placed in the mouth of a patient, the modeling compound creates muscle-tension and tissue-displacement, usually precluding the possibility of a stable impression at the first step.

Another point well worth remembering is that by the repeated heating of ordinary compound there is the possibility of overheating the mouth, causing an engorgement or enlargement of the ridge-bearing tissues, which results in a poorly fitting denture.

The compound recommended here is workable at 110°F., which when placed in the mouth rolls up over the flanges of the tray with slight pressure, causing a minimum of displacement or tension of the tissues.

Methods of Developing Tray

There are two ways of developing the tray:

The first method is that used in the Fournet-Tuller technique of making a vulcanite tray from a snap impression carried back well over the retromolar papilla and extended lingually well below and behind the mylohyoid ridge. The tray is fitted, so that the entire tray outline clears all muscle attachments.

In the second method, the tray is developed by building an impression in a metal tray. This method is simpler than the first. The tray should have a high offset handle. The tray should be narrow in the incisal region, barely covering the crest of the ridge, extending well back into the retromolar area and deep enough on the lingual to carry the compound to the floor of the mouth without any interference of the tongue movements (Fig. 1). Such a tray is similar to those used in the Wavrin and Bunce-Kanouse techniques.

Technique

1. To start the impression, take 1½ cakes of Brewster's compound and heat in water 120°F. When softened, knead until there is uniform consistency; then lute to the tray with heat. Shape the compound to fit the crest of the ridge, with plenty of bulk to the lingual side of the tray (Fig. 2).

2. Rapidly pass the compound through a flame to glaze the surface and temper in warm water.

3. Place in the mouth and with gentle pressure in second bicuspid region, press downward and slightly forward.

4. Have the patient protrude the tongue as far as possible (Fig. 7); reach for the tip of the nose, holding in this position for ten seconds, and letting the compound creep over the lingual flanges of the tray. Have the patient retract the tongue (Fig. 3), relax, and then open the mouth as far as possible, as in yawning. This will roll excess material up onto the buccal tray flange. The patient then extends the tongue out each corner of the mouth as far as possible (Figs. 8 and 9), and again, relaxes all muscles. These movements determine a partial tolerance of the buccal and lingual flanges of the finished impression.

5. Chill and carefully remove the impression.

On examining this snap impression (Fig. 11) if the retromolar area is outlined and the distal border of the lingual flange extends straight down below and posterior to the mylohyoid ridge, and if the buccal, labial, and lingual borders are well defined—then, the operator is ready for the next step.

6. With a sharp knife, trim the surplus compound from the whole rim, leaving the buccal and labial fold well rounded, and reducing the thickness of the lingual flange, so that it is about 2 mm. thick (Fig. 12). Return this to the mouth to see that there are no sharp corners or undercuts to injure the tissues, and that there has been no distortion of the compound when removing from the mouth. It is important that the patient be relaxed and have no distress areas when the tray is inserted, so that he can give the mouth movements desired in trimming the impression.

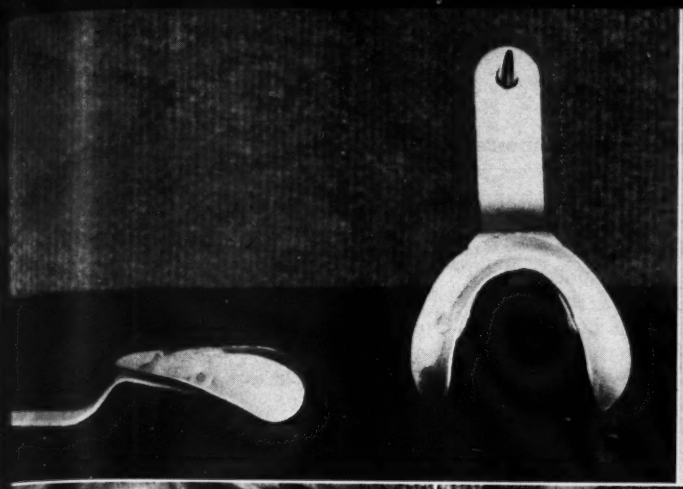
Fig. 1—Type of tray used. High offset handle gives room for lip movements.

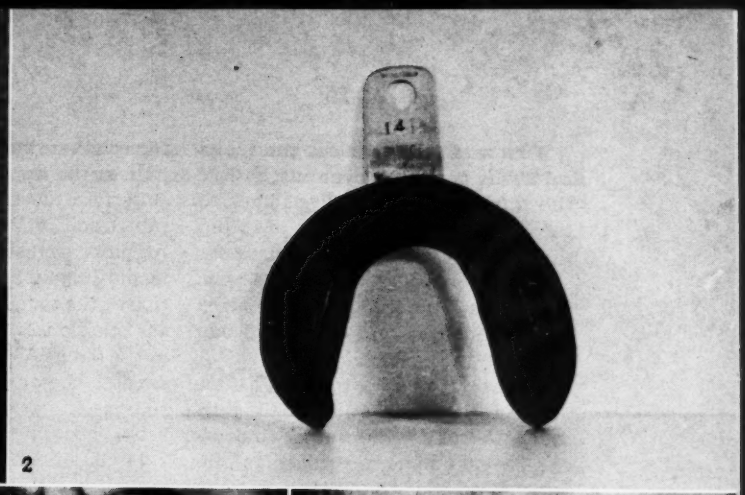
Fig. 2—Tray with compound formed to take snap impression.

Figs. 3, 4, 5 and 6—Movements used in muscle-trimming buccal and labial borders of impression.

Figs. 7, 8, 9 and 10—Movements used in muscle-trimming lingual borders.

Fig. 11—Preliminary impression.





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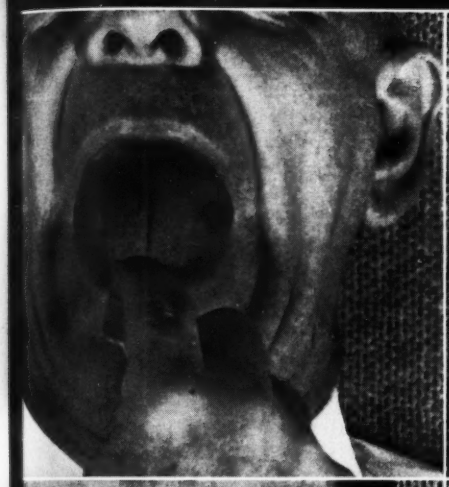

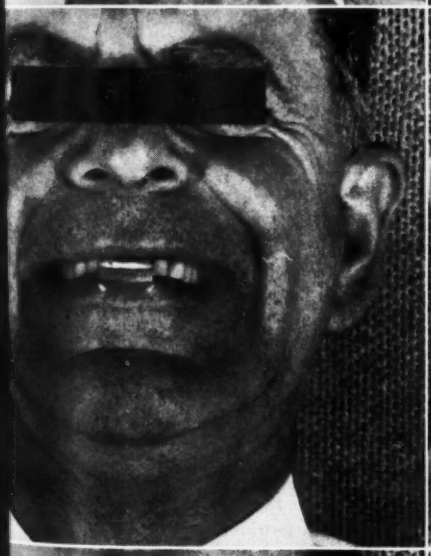

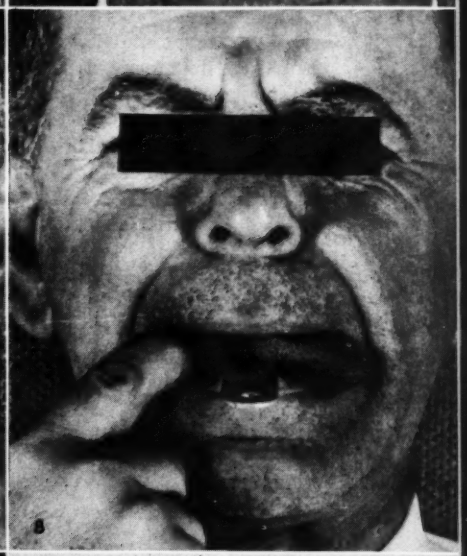
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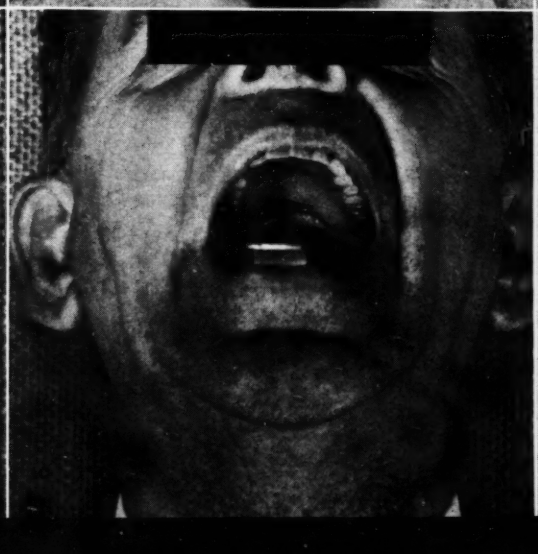

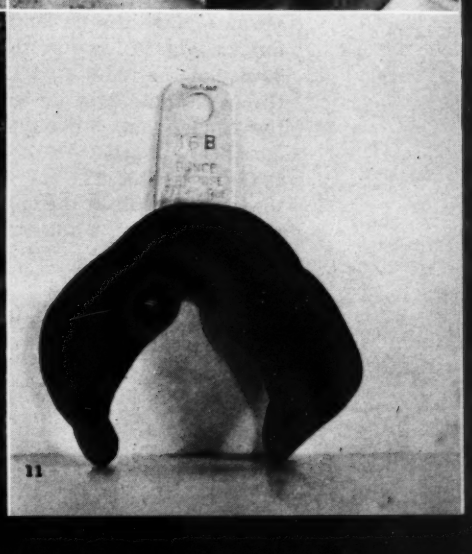

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7. First trim the buccal and labial rim. This is done by flaming half of the rim from the symphysis back to the heel, being careful not to soften the ridge area, and keeping the heat along the outside border of the tray. Temper this in warm water and place in the mouth, with the unheated side first.

8. Seat with firm pressure in first molar region and while holding in this position, use the fingers to draw cheeks up and gently massage the muscles upward and inward.

9. Have the patient close the lips and push them forward as far as possible (Fig. 4). While in this position, move the lips from side to side (Fig. 5). The mouth is held open to the extreme limit for three seconds; then, relaxed. The muscle paths have now been partly outlined and the rim seal is had in the labial and buccal flanges through the contracting pressure of the orbicularis oris and buccinator muscles. Chill the impression and remove.

10. Repeat these movements on opposite half.

11. With a small flame soften areas where muscle attachments are outlined.

12. Reseat and have patient push closed lips forward and work from side to side (Fig. 6). Quickly, the patient retracts the lips as in extreme anger and then with closed lips sucks cheeks and lips steadily for about ten seconds. When these movements have been repeated on the opposite side, the muscle paths have been outlined. Chill impression and remove.

13. The next step is to determine the form of the lingual flange. This is done by cautiously heating half of the rim to a depth of 2 mm., care being taken to keep heat away from the ridge area. Temper in warm water, seat firmly in the mouth, and have the patient extend the tongue straight forward as far as possible, holding in this position about three seconds. Have the patient press the tongue (Fig. 10) against the palatine border of the roof of the mouth for three seconds. The patient pushes the tongue out one corner of the mouth and down over the lower lip as far as possible. The patient repeats these movements at the opposite corner and relaxes. Chill and remove. Repeat these movements on the other half of the impression.

In these movements, in the straight protrusion of the tongue, the genio-hyoglossus muscle trims and seals the medio-lingual area. The palatal position of the tongue causes the hyoglossus muscle to trim the distal portion of the flange. While in the lateral protrusion, the genio-hyoglossus muscle relieves the area over the sublingual salivary gland.

14. To determine the distal border and the distal end of the lingual flange, add a small amount of compound or black carding wax over the retromolar papilla, extending down the lingual flange behind the mylohyoid ridge. Warm and seat in the mouth and chill. Repeat on opposite side. Trim away excess, leaving about 1 mm. beyond the papilla in all directions. With a small flame, gently heat this added material, being careful not to soften the flange below the mylohyoid ridge; otherwise, in the trimming movement, the expanding force of the tongue will over-compress the tissues on this ridge. Place the impression in position and with firm pressure in the molar region, move the impression laterally from side to side. This aids in clearing the crest of the mylohyoid ridge. Next have the patient swallow twice, then protrude the tongue out each corner of the mouth. Chill the impression and remove (Fig. 13).

In the swallowing movement, the superior constrictor and hyoglossus muscles determine the distance of tolerance of the lingual flange. The added material also acts as a post-dam and prevents dislodgment of the denture when force is applied on the anterior teeth as in biting.

If the impression dislodges when the mouth is opened, this is evidence that the buccal flange is over-extended at some point. To find this area, hold the impression in place with pressure on one side and have the patient make both normal and extreme movements of cheek and lips. These movements will dislodge the buccal or labial rim if there is an over-extension of the border. Note the location of the muscle-tension. Reheat this area, replace, and use movements that caused displacement.

If the tongue causes trouble, the lingual flange is at fault. With slight pressure over the ridge on one side, have the patient go through previous tongue movements until the offending area is located. Reheat this area and use tongue movements again.

The next step completes the impression and proves whether the previous steps are correct and also overcomes any error, however small, made up to this point.

15. Dry the impression thoroughly and cover the crest of the ridge area with Kelly's paste. Insert in the mouth, holding with firm pressure and have the patient use all previous movements. When set, remove the impression, and on examination, if the compound shows through the paste, it is an evidence of hyper-tension or over-compression which must be relieved (Fig. 14).

First check the area over the mylohyoid ridge. If the compound shows through the paste, it is usually about 1 mm. in width. With a number 8 round bur, cut away the compound about 0.5 mm. deep. Check the distal border of the lingual flange and then the lingual and the labial frenum.

To test for stability, return to the mouth, seat the impression, and then lift the tray handle; have the patient open the mouth wide and protrude the tongue, using all muscle-trim movements. The impression can be approved only when none of these movements dislodges it.

It is important to pour the cast immediately after finishing the impression.

Use of Buccinator Muscle As Aid in Retention

Many efforts have been made to use the buccinator muscle as an aid to retention of the lower denture. The

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Fig. 12—Preliminary impression excess removed; ready to begin muscle-trimming.

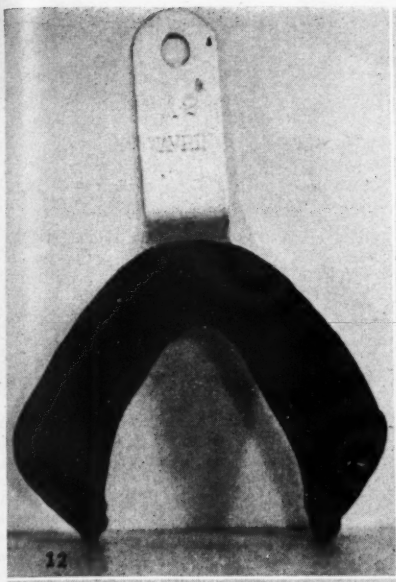
Fig. 13—Muscle-trim completed.

Fig. 14—Final corrected impression.

Fig. 15—Schematic drawing of the two common forms of buccal flange.

Fig. 16—How food spills off buccal borders of posterior teeth and packs into buccal pouch. It is impossible to clear out foodstuff with tongue, because when lingual flange is sealed in floor of the mouth, it limits the movement of the tongue.

Figs. 17, 18—Counter wax molded on buccal flange by action of buccinator muscle.



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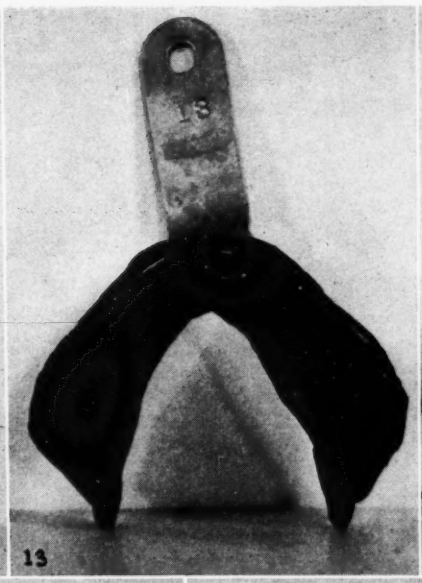

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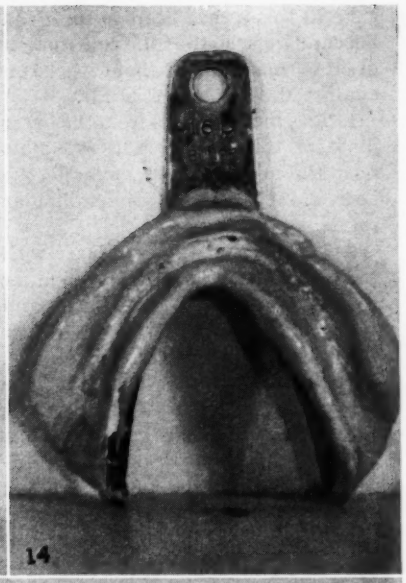

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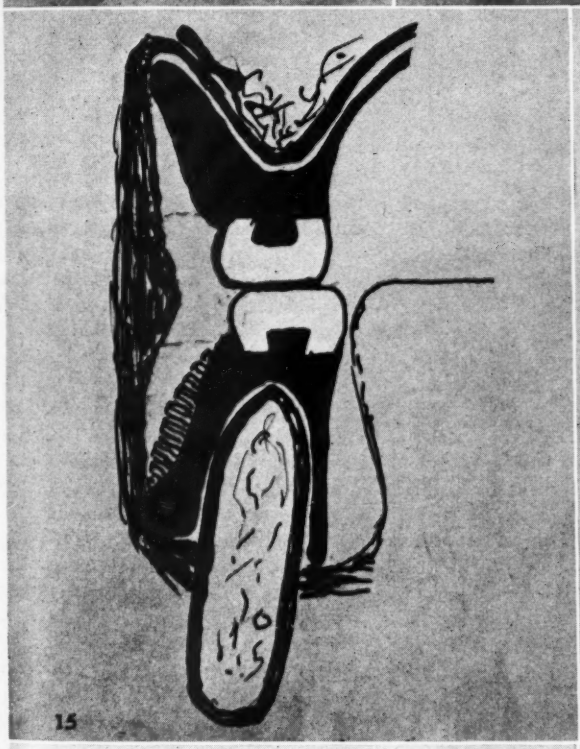

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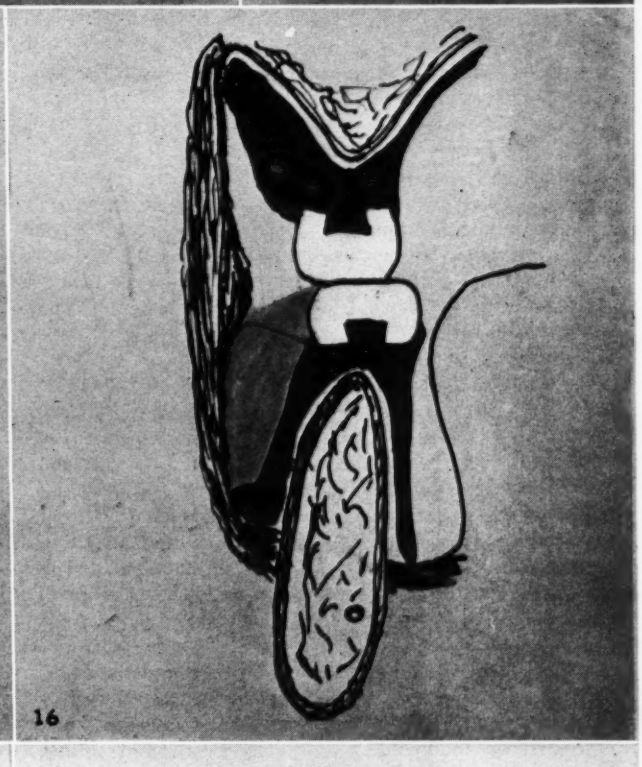

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general theory has been to form the buccal flange, so that the contraction of this muscle will hold the rim against the tissues (Fig. 15).

1. This muscle arises from the outer plate of the maxilla and mandible near the apexes of the molar teeth; also from the pterygomandibular raphe.

2. It converges and interlaces with the orbicularis oris muscle, the lower fibers becoming the upper fibers and the upper fibers becoming the lower fibers of the orbicularis oris muscle.

3. During function there is little action of the fibers near its origin. The center portion has the most movement, the fibers here lying adjacent to the buccal surfaces of the molar and bicuspid teeth.

4. When the mouth is open, this muscle relaxes and makes virtually a perpendicular wall of the cheek.

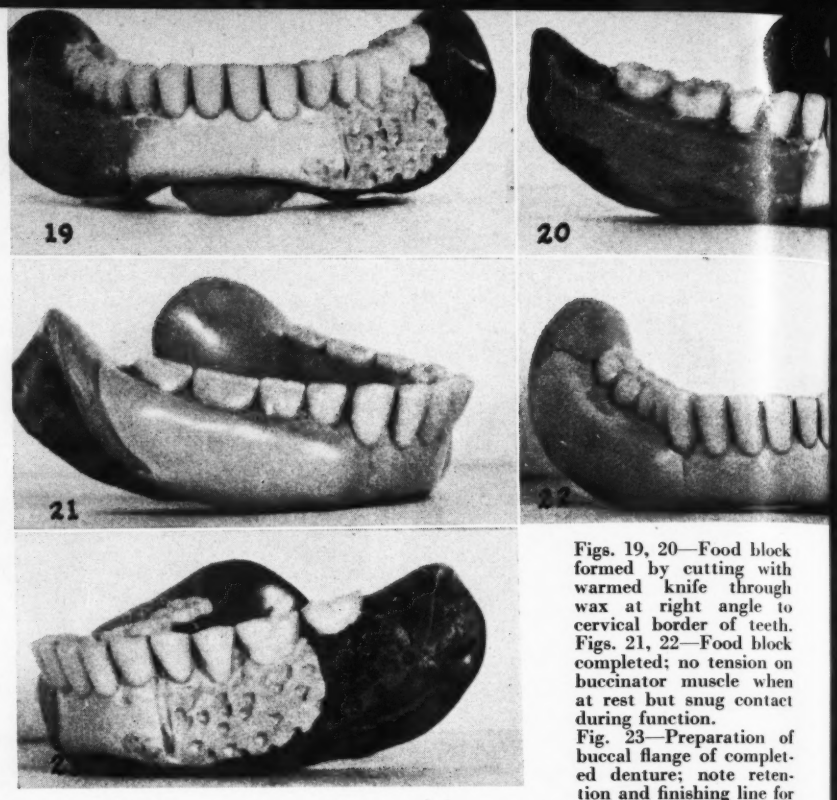
5. During mastication when the tongue is placing food upon the occlusal surfaces of the lower teeth, the center fibers contract, causing a bulging of the muscle against the buccal surfaces of the posterior teeth, and acting as a buffer to hold the bolus of food in proper position.

6. Also, when the buccal flange is properly formed these fibers inhibit lateral movement or displacement of the lower denture.

7. When these fibers contract, however, there is a pocket formed below the teeth between the base of the denture and the cheek wall.

8. As the food is chewed, a portion of it is cleared from the occlusal surfaces to the buccal side of the denture, and as the center fibers of the buccinator muscle relaxes, it drops into this pocket; as the amount accumulates, it forms a food pack (Fig. 16).

9. This can be overcome by remodeling the buccal surface into a food block. This food block stops the formation of food packs and its position in relation to the teeth makes it possible for the tongue to clear the food from its surface without effort. It forms a shelf from the cervical border of the teeth in the region extending from the second molar to the first bicuspid in length and from the teeth to the contracted buccinator muscle in width. It is a form of buccal retention. It should be built out to the cheek muscles, so that when they contract during mastication, the buccal surface should meet them snugly without tension, holding the food upon the table of the block where the tongue can easily handle it.



Figs. 19, 20—Food block formed by cutting with warmed knife through wax at right angle to cervical border of teeth. Figs. 21, 22—Food block completed; no tension on buccinator muscle when at rest but snug contact during function.
Fig. 23—Preparation of buccal flange of completed denture; note retention and finishing line for addition of food block.

Tolerance of Food Block

The simplest way to find the patient's tolerance of this food block is to take soft counter wax and add to the trial set-up, having the patient contract the cheek muscles a few times. If an insufficient amount is used, keep adding a little more until the buccal surface is nearly perpendicular to the base up to the cervical border of the teeth (Fig. 17); then, it rounds inward to the occlusal surfaces of the teeth (Fig. 18). Remove this from the mouth, chill, and with a thin warm knife, cut through the wax horizontally (Fig. 19) to the necks of the teeth and the block is formed (Fig. 20). The table of this block will keep food where the tongue can easily handle it, improving the efficiency of any type of teeth used (Figs. 21, 22, and 23).

Final Test

The intaglio of the finished denture must be clean; there should be no small bubbles of rubber present; the occlusal planes should be balanced.

Prepare one of the mineral soap preparations by heating to a creamy consistency, and add at the ridge area of the denture. Insert in the mouth and have the patient bite firmly to place; use all the movements involved in developing the impression. Rest under pressure for two minutes, chill, and remove the case. If the denture base shows through the material anywhere, it is an over-compressed area which will cause trouble later. Relieve this spot with a small round vulcanite bur to a depth of about 0.5 mm. Dry the case; add a little more material to this spot; warm over a flame, and return to the mouth, proceeding as previously. On removal, this should show a thin film of uniform thickness all over the tissue area of the case. When this result is attained, the operator may rest assured that the case will be comfortable as long as occlusal balance is maintained.

This technique is particularly well adapted for relining or rebuilding old dentures, full or partial.

1209 *Talcott Building.*

Anterior Dovetail Inlays

R. F. IOSET, D.D.S., Long Prairie, Minnesota

THE ANTERIOR dovetail inlay makes a good restoration on the mesial or distal of the six upper anterior teeth, when decay is extensive and weakens the incisal edge of the tooth. Because the pulp in such teeth is more toward the labial and the lingual is thick, this side is particularly suitable for the anchorage of the inlay (Fig. 1, A).

Technique

1. The cavity preparation (Fig. 1, B and D) is begun by breaking through, with a number 48 chisel, the incisal edge, down through the cavity, so that a seven-eighths inch carborundum disc can be inserted between the teeth and then pulled with the flat surface against the cavity of the tooth.

2. When the space is opened, slant the disc lingually (about 10 degrees), so that the labial part of the restoration will not be as thick as the lingual. This will not show so much gold on the labial but will add strength to the restoration as the lingual will be heavier (Fig. 1, B and D).

3. Remove enough of the tooth structure to leave the enamel around the cavity thick and sound and with no decay near the gingival. If the decay extends up near the gingival, I do not make a step but rather a slice, such as in making a three-quarter crown.

4. When this slice is smooth and of the shape desired, finish it with a coarse cuttle disc so that the surface

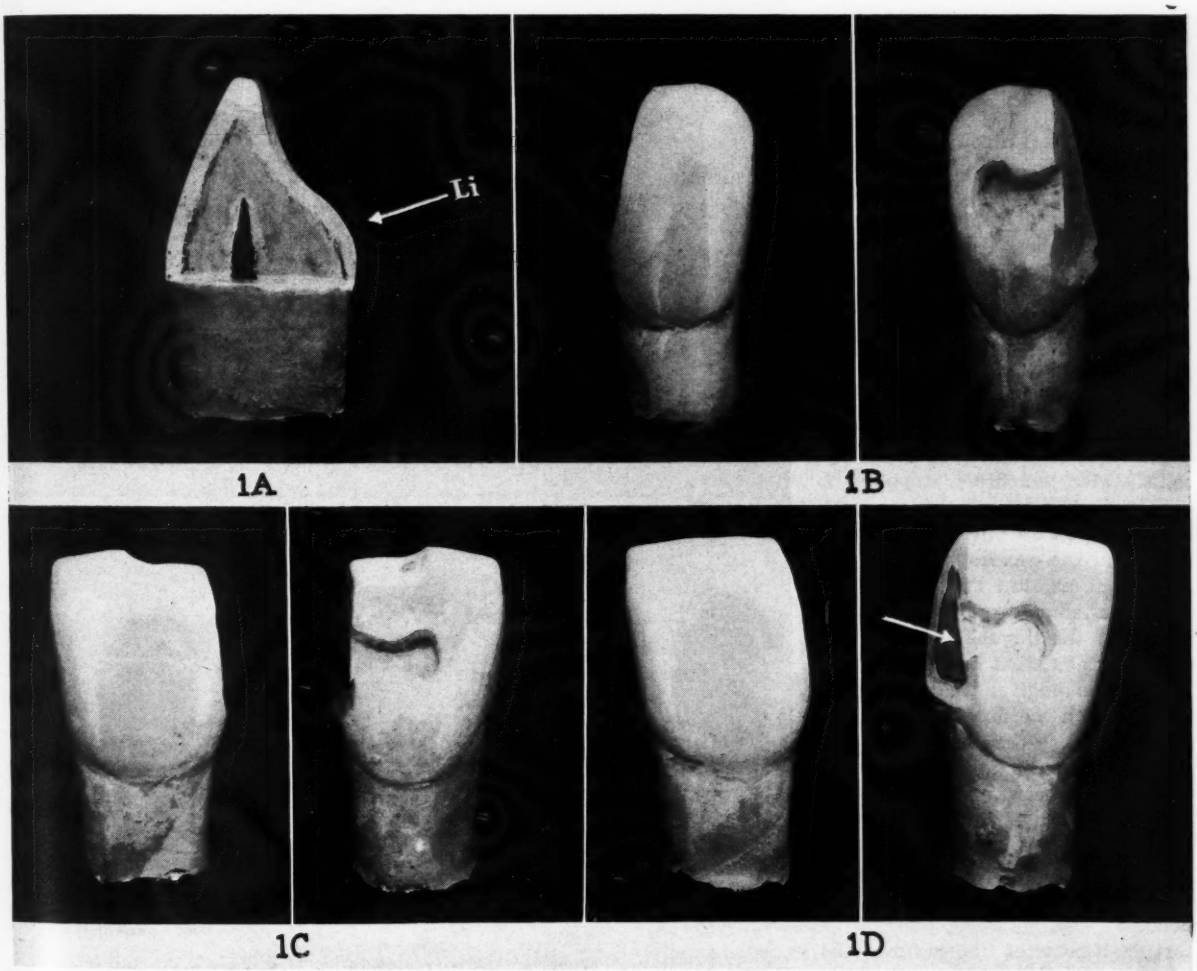


Fig. 1—A, Model of a half section of a crown of a tooth, showing position of pulp and thickness of lingual. B and D, Cavity preparation. C, Lug-locked dovetail inlay for incisal edge.

is smooth down through the gingival.

5. The dovetail is introduced in the lingual which is in the upper third of the crown. The 559 fissure bur is best for this purpose, used in a right-angle or contra-angle handpiece, as the dovetail should be of box form.

6. Place the bur at the slice edge on the lingual about 1 mm. deep and then pull it across a little more than half of the tooth. Be sure to hold the bur at a right angle in order that there will be no undercuts. With care, this dovetail can be enlarged to the shape of models B and D in Fig. 1, and about 1.5 mm. deep on centrals and 2 mm. on cuspids.

7. Use a chisel, number 86, to trim around the dovetail to be sure there are no undercuts and loose enamel rods.

8. If there is still some decay in the cavity, take a wax model, provided the decay in the center does not hinder or distort the model; if the decay is deep, scoop it out, put in a cement base, and smooth (Fig. 1, D, arrow), with no undercuts.

To take the wax pattern or model, I use regular blue inlay wax, Ward explorer number 1, waxing instrument, Wessler 7 C plastic instrument, and an old instrument with a rather small end so that it can be heated and run into the dovetail. (I use a broken small shank amalgam instrument.)

9. In preparing the cavity when the gingival portion is below the gum line, it will be necessary to pack it tightly with temporary stopping, so that the gingival will be accurate. Moisten or oil the cavity.

10. Heat the wax in the shape of a nickel but as thin as a dime, and when the temperature is correct, insert from the lingual and push toward the labial, but be sure the wax touches the gingival area first before pushing with the finger. Cool but do not chill. Heat the instrument and when hot run this around the dovetail to melt the wax and then force in under pressure with forefinger or blunt instrument. This is important as this seats the wax in the dovetail and makes the walls square for retention.

11. Melt some of the wax over the labial, so that all margins are covered. Cool but do not chill. Trim the labial to the margin with the waxing instrument; trim the lingual with

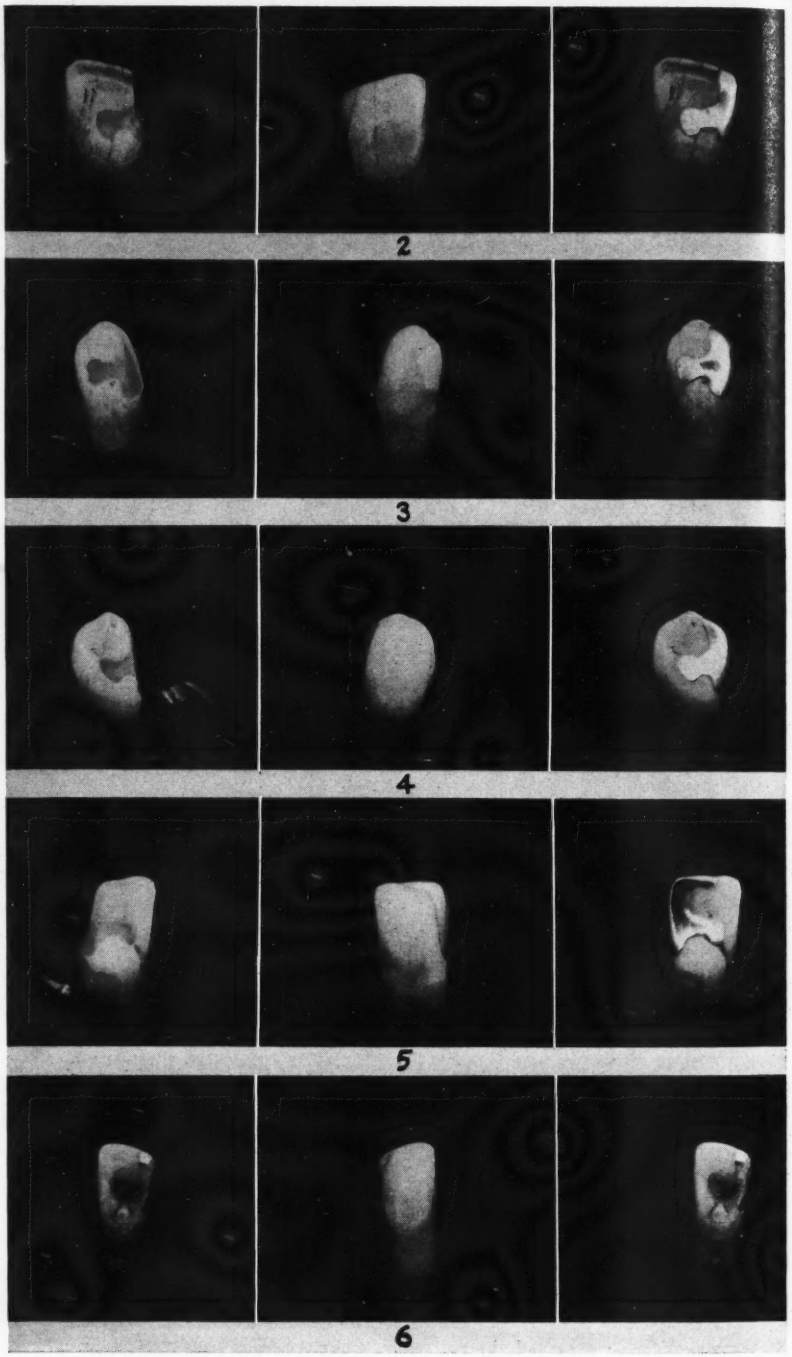


Fig. 2—Labial and lingual views; cavity preparation of a dovetail inlay on distal of a central incisor.

Figs. 3 and 4—Labial and lingual views; cavity preparation of dovetail inlays on cuspids.

Fig. 5—Labial and lingual views; cavity preparation of a lug-lock dovetail inlay on a central.

Fig. 6—Dovetail inlay in lateral, worn by patient for eight years before extraction of teeth. Note wear on incisal.

the plastic instrument. Shape the wax model and contour with an explorer.

12. Warm a thin matrix band (Ivory number 8 or 9), but do not heat until it melts the wax. Slide the band down between the inlay and the next tooth. Warm the spatula and place outside the matrix band and between the teeth; pull the band a little. This will give a definite margin on the gingival. Place the blunt end of the wax spatula against the labial of the inlay and push or tease the inlay in lingually for removal. If removed carefully there will be no distortion as it is one solid mass and nothing is melted on it. Do not put the sprue-pin on the model in the tooth, as these wax models are pushed out, not pulled or forced out.

13. I do not lay the model away but invest it immediately after removal; thus there can be no distortion or shrinkage. The operator may use his usual casting technique, although the expansion method is recommended.

14. When cast, place the inlay in the tooth; finish around all margins, and test the bite. If some decay or part of a silicate restoration has been left in the slice, remove it now; then cement the inlay in place, and polish.

Technique for the Incisal Restoration

The lug-locked dovetail inlay is used when the incisal edge or corner of a tooth has been chipped. It is one of the strongest inlays made (Fig. 1, C). The slice and dovetail are made in the same manner as the regular dovetail inlay.

1. The incisal edge is ground or evened with a number 38 S. S. White carborundum stone or some similar stone, sloped toward the lingual for strength. It is well also to have a little gold show on the labial. Polish smooth with a coarse cuttle disc; with a 701 bur in a straight handpiece, drill a hole about 1.5 mm. deep, sloping slightly toward the labial. Be sure that there are no undercuts when finished.

2. The wax pattern is made as in the dovetail inlay except that it is necessary to insert the hot instrument in the hole in the incisal in order to make the lug.

3. Trim as previously described, but in removing, place the blunt spatula at the labial near the gingival and push or tease lingually, so that the gingival releases first.

4. Do not use the sprue-pin in the mouth in removing. (Fig. 5, lingual view of restoration that is not quite seated, shows this.) When removed carefully there is no distortion whatever. It is best to invest the wax pattern immediately.

5. When cast, place the inlay in the tooth, the lug-incisal first; then force the dovetail into position. The dovetail will snap or lock into place. Finish the inlay with stones and discs until the margins are perfect. Remove inlay; cement into place; polish and finish.

Summary of Precautions

1. Be sure that there are no undercuts.

2. When inserting wax for the model, be sure to push the wax first against the gingival. The wax model must be in one piece—without additions.

3. Do not chill the wax with ice water, but leave it harden of itself.

4. A hot instrument should be inserted in the wax in the dovetail seats. This is important for retention.

Announcement of Books Received

THE DENTIST AND HIS CONTROL OF PRACTICE ("A textbook of ethical precepts on dental office administration for the reference of dentists and for the further enlightenment of dental students.") By S. Joseph Bregstein, D.D.S., Brooklyn, Dental Items of Interest Publishing Company; London, Henry Kimpton, 1939.

ANNAES DA FACULDADE DE ODONTOLOGIA E PHARMACIA DA UNIVERSIDADE DE MINAS GERAES ("Jornal do Commercio"), Rio de Janeiro, Rodrigues & Cia, 1938.

TECNICA DE DENTISTICA CONSERVADORA (on cavity preparation), Illustrated; By Alejandro Zabotinsky, Editor El Ateneo, Buenos Aires, 1938.

THE PRINCIPLES OF DENTAL MEDICINE ("The Medical Aspects of Dental Disease"), By F. W. Broderick, M.R.C.S., L.R.C.P., L.D.S., Third Edition, Illustrated, St. Louis, The C. V. Mosby Company, 1939.

MANUAL FOR DENTAL TECHNICIANS: VULCANITE (Illustrated), By J. A. Salzmann, D.D.S., New York, Pitman Publishing Corporation, 1938.

CONDUCTION, INFILTRATION AND GENERAL ANESTHESIA IN DENTISTRY, Fourth Edition, Illustrated with 213 Engravings and Large Trigeminal Nerve Chart; By Mendel Nevin, D.D.S. and P. G. Puterbaugh, M.D., D.D.S. with Collaborators: Fred R. Adams, D.D.S. and Hillard R. Nevin, L.D.S., D.D.S., Brooklyn, Dental Items of Interest Publishing Company; London, Henry Kimpton, 1938.

THE TOOTHBRUSH: ITS USE AND ABUSE ("A Treatise on Preventive Dentistry and Periodontia as Related to Dental Hygiene"), With 174 Case Histories and 415 Illustrations; By Isador Hirschfeld, D.D.S., Brooklyn, Dental Items of Interest Publishing Company; London, Henry Kimpton, 1939.

What the Dentist Should Know about Angina Pectoris, Coronary Thrombosis, and Arteriosclerosis

CLAYTON J. LUNDY, M. D., Chicago

PEOPLE LIVE TO an older age in our present generation and as one result there is a greater incidence of arteriosclerotic heart disease. Arteriosclerotic heart disease should properly be called coronary arteriosclerosis inasmuch as it is primarily arteriosclerosis of the arteries of the heart which causes heart disease of old age. Some think that hardening of the arteries is the result of an infectious condition, whereas others think it is due to faulty burning up of foods, as occurs with over-indulgence in fatty foods. There is a third opinion that mechanical stress and strain cause the blood vessels to lose their elasticity as the years pass. As a result of strain on an inelastic artery, these blood vessels react with fibrosis as well as with the deposit of fatty placques and calcium placques in the vessel wall. Recent investigation has demonstrated in a striking manner a fourth conception: that hemorrhage in the wall of the blood vessel may precede the arteriosclerotic process. It is possible that all these factors may contribute to the condition.

With this thickening of the artery to the heart, and especially if the usually smooth lining of the blood vessel becomes roughened or cracked, it is easy for a clot to form at such a site and coronary thrombosis takes place with its associated heart attack. Severe pain usually accompanies such an attack and morphine is required for relief. This pain is known as angina pectoris. Angina pectoris may also occur in the absence of coronary thrombosis; i.e., in the absence of complete shutting off of the blood supply to a part of the heart. Angina pectoris may be caused by a narrowed coronary artery which conveys an inadequate blood supply to the heart. This diminished blood supply may be adequate when the heart is not overtaxed, but when there are increased demands on the heart for work, the blood supply becomes inadequate and heart pain usually develops. When angina pectoris is brought on by effort, under the circumstance of inadequate blood supply, it may be completely relieved with nitroglycerin, aromatic spirits of ammonia, sodium nitrate, or other blood vessel dilators. From this point of view, it is seen that angina pectoris is a symptom and not a disease, and it is further seen that it may be accompanied by coronary thrombosis or it may be due merely to ordinary exertion in the presence of poor coronary artery circulation.

Angina pectoris may consist of pain just under the left collar bone, or over the heart. More serious types are pain under the sternum. Frequently this pain will radiate up into the neck and throat or even into a tooth. The pain may also radiate into the left shoulder or arm. At times there may be no direct connection between chest pain and pain in the throat or pain in the arm or fingers, but it is from the heart just the same.

Fainting in the dentist's chair may be due to the onset of a severe attack of angina pectoris. Indeed, the patient may have coronary disease without pain. Fainting may be due to simple syncope as a result of dilatation of the blood vessels in the abdomen, which in turn causes cerebral anemia. Cerebral anemia can also be caused by pulse irregularities at the onset of a heart attack. Cardiac arrest, that is, complete cardiac standstill, may take place or the heart may be extremely fast (flutter) and may be working so inefficiently that a poor blood supply to the brain is maintained in the sitting position. It is almost always advisable to have a patient recline when he has fainted. Consciousness is almost always restored within a few minutes after he has been placed in a horizontal position.

Relationship of Infection to Thrombosis

The relationship of infection to thrombosis of any vessel is probably unproved. Empirically, at least, it is a fact that many excellent physicians assume that infection accelerates the arteriosclerotic process and therefore accelerates heart disease, as a result of arteriosclerosis, and increases the frequency of that condition. Naturally, it would increase the occurrence of coronary thrombosis. Infected teeth and gums probably stand third on the list of infections that I assume hastens arteriosclerosis. Obviously, proof of this contention is difficult to obtain so far as specific dental infection is concerned. There are those who say that infection in an older person probably does little harm. Most proponents of that idea are not students of disease of the heart and blood vessels. Workers in this field usually give serious consideration to the removal of all obvious foci of infection and intoxication. The definitely abscessed tooth and the obvious case of pyorrhea and pyorrhea pockets should be removed. Questionable situations, such as questionably infected teeth roots, are regarded with greater tolerance. In this connection, it is important to note that a dying tooth is probably more harmful and a more potent source of intoxication than a devitalized tooth, because the blood supply is intact and there is constant feeding and draining off of toxin into the patient's blood stream.

Diagnosis by Electrocardiogram

The diagnosis of coronary thrombosis and narrowing of the arteries

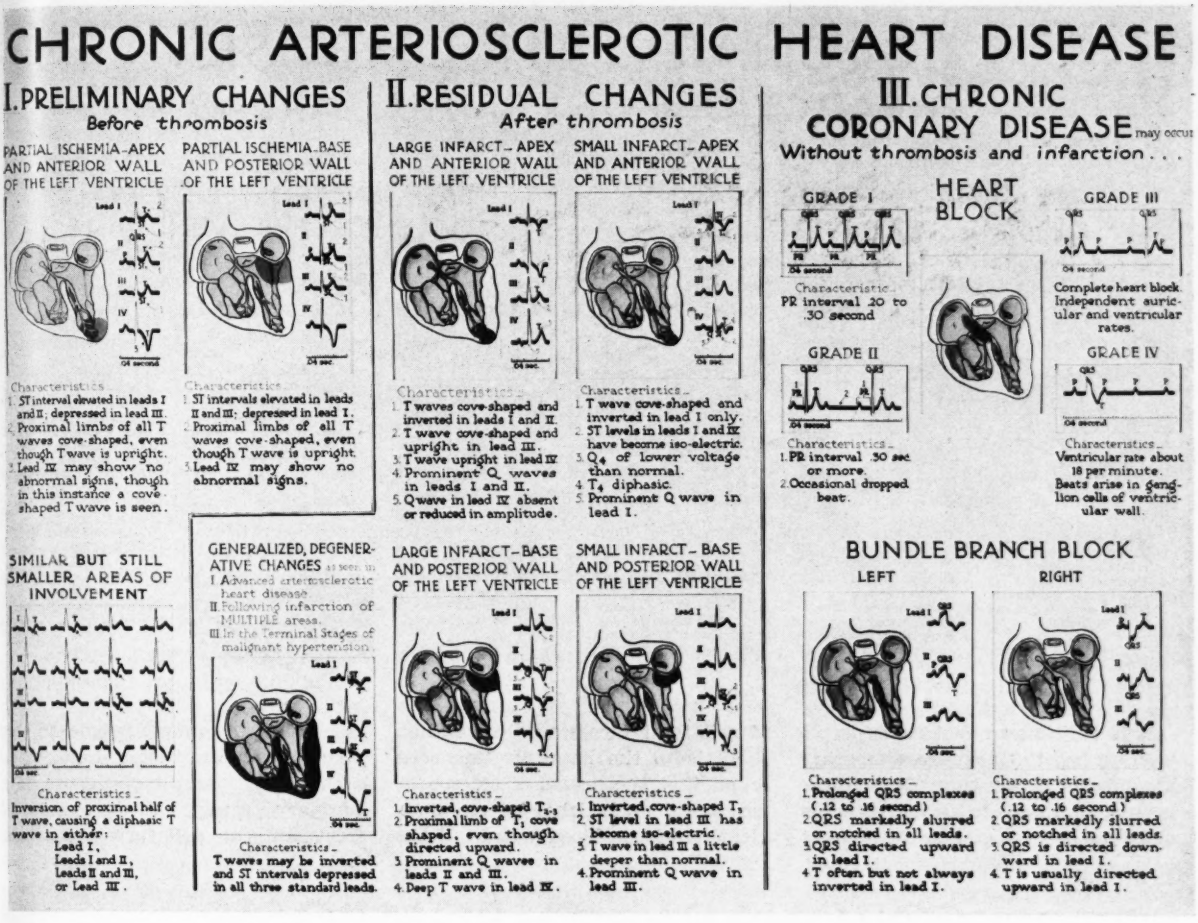

CHRONIC ARTERIOSCLEROTIC HEART DISEASE
I. PRELIMINARY CHANGES
Before thrombosis
PARTIAL ISCHEMIA–APEX AND ANTERIOR WALL OF THE LEFT VENTRICLE
Characteristics
1. ST interval elevated in leads I and II; depressed in lead III.
2. Proximal limbs of all T waves cove-shaped, even though T wave is upright.
3. Lead IV may show no abnormal signs, though in this instance a cove-shaped T wave is seen.
PARTIAL ISCHEMIA–BASE AND POSTERIOR WALL OF THE LEFT VENTRICLE
Characteristics
1. ST intervals elevated in leads II and III; depressed in lead I.
2. Proximal limbs of all T waves cove-shaped, even though T wave is upright.
3. Lead IV may show no abnormal signs.
SIMILAR BUT STILL SMALLER AREAS OF INVOLVEMENT
Characteristics
Inversion of proximal half of T wave, causing a diphasic T wave in either:
Lead I,
Leads I and II,
Leads II and III,
or Lead III.
GENERALIZED, DEGENERATIVE CHANGES as seen in
I. Advanced arteriosclerotic heart disease.
II. Following infarction of MULTIPLE areas.
III. In the Terminal Stages of malignant hypertension.
Characteristics
T waves may be inverted and ST intervals depressed in all three standard leads.
II. RESIDUAL CHANGES
After thrombosis
LARGE INFARCT–APEX AND ANTERIOR WALL OF THE LEFT VENTRICLE
Characteristics
1. T waves cove-shaped and inverted in leads I and II.
2. T wave cove-shaped and upright in lead III.
3. T wave upright in lead IV.
4. Prominent Q waves in leads I and II.
5. Q wave in lead IV absent or reduced in amplitude.
SMALL INFARCT–APEX AND ANTERIOR WALL OF THE LEFT VENTRICLE
Characteristics
1. T wave cove-shaped and inverted in lead I only.
2. ST levels in leads I and IV have become iso-electric.
3. Q_4 of lower voltage than normal.
4. T_4 diphasic.
5. Prominent Q wave in lead I.
LARGE INFARCT–BASE AND POSTERIOR WALL OF THE LEFT VENTRICLE
Characteristics
1. Inverted, cove-shaped $T_{2,3}$
2. Proximal limb of T_1 cove shaped, even though directed upward.
3. Prominent Q waves in leads II and III.
4. Deep T wave in lead IV.
SMALL INFARCT–BASE AND POSTERIOR WALL OF THE LEFT VENTRICLE
Characteristics
1. Inverted, cove-shaped T_2
2. ST level in lead III has become iso-electric.
3. T wave in lead III a little deeper than normal.
4. Prominent Q wave in lead III.
III. CHRONIC CORONARY DISEASE may occur
Without thrombosis and infarction . . .
HEART BLOCK
GRADE I
Characteristic
PR interval .20 to .30 second
GRADE II
Characteristics
1. PR interval .30 sec. or more.
2. Occasional dropped beat.
GRADE III
Complete heart block. Independent auricular and ventricular rates.
GRADE IV
Characteristics
Ventricular rate about 18 per minute. Beats arise in ganglion cells of ventricular wall.
BUNDLE BRANCH BLOCK
LEFT
Characteristics
1. Prolonged QRS complexes (.12 to .16 second)
2. QRS markedly slurred or notched in all leads.
3. QRS directed upward in lead I.
4. T often but not always inverted in lead I.
RIGHT
Characteristics
1. Prolonged QRS complexes (.12 to .16 second)
2. QRS markedly slurred or notched in all leads.
3. QRS is directed downward in lead I.
4. T is usually directed upward in lead I.

Fig. 1

to the heart is greatly facilitated by the electrocardiogram, which is a record of the electrical activity that takes place in the heart during each heart beat. Under normal circumstances the electrocardiogram has a normal pattern. In the presence of coronary thrombosis, this pattern is greatly altered; it has a characteristic picture when different parts of the heart have been injured owing to the shutting off of its blood supply. When narrowing of the arteries to the heart takes place, the electrocardiogram likewise has a picture of the results of such a condition, but this picture is not so characteristic. It is of greater importance to learn that the coronary arteries are narrowed, because something can be done to help prepare the heart for further obstruction of the coronary circulation before coronary thrombosis takes place. Whereas the diagnosis of coronary thrombosis is rather easily made without an electrocardiogram, and furthermore, nothing can be done to prevent it after it has happened, the diagnosis of inadequate coronary circulation is also made rather easily without an electrocardiogram; but with the aid of an electrocardiogram, we are able to detect the earliest signs of this condition and institute treatment years before coronary thrombosis takes place.

Interpretation of Electrocardiogram

The electrocardiogram not only helps diagnose the condition of coronary thrombosis, but it also helps in determining the size of the area of injured heart muscle. A study of the accompanying charts will show these gross differences between larger and smaller regions of injury. In addition it will be noticed that injury to certain regions of the heart show characteristic pictures. In Fig. 1 it will be noted that injury at the apex and anterior surface of the left ventricle causes an inversion of the T waves in leads one and two, whereas there is inversion of the T waves in leads two and three when the injury is in the base and posterior wall of the ventricles. These different leads represent three different electrical pictures at three different angles to the heart. These electrical pictures represent the electrical activity which accompanies each individual heart beat. Lead one represents the heart current picked up with contacts on both arms. Lead two represents the heart current picked up with contacts on the right arm and left leg. Lead three represents the heart current picked up with contacts on the left arm and left leg.

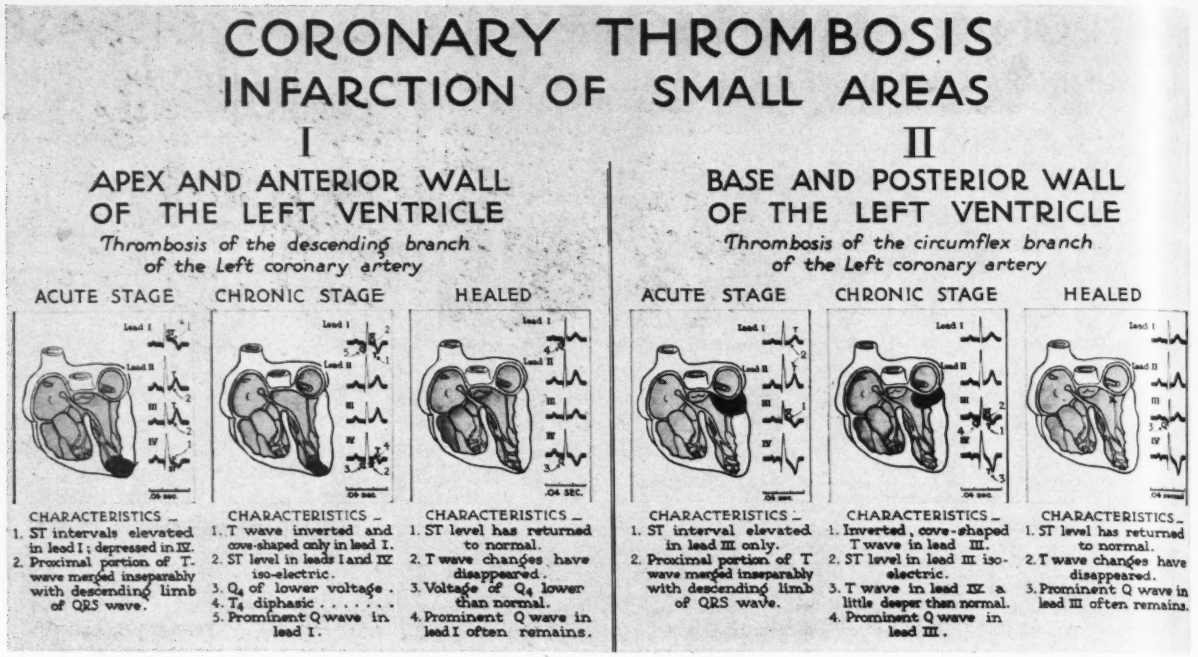

CORONARY THROMBOSIS
INFARCTION OF SMALL AREAS
I
APEX AND ANTERIOR WALL OF THE LEFT VENTRICLE
Thrombosis of the descending branch of the Left coronary artery
ACUTE STAGE
CHRONIC STAGE
HEALED
CHARACTERISTICS –
1. ST intervals elevated in lead I; depressed in IV.
2. Proximal portion of T-wave merged inseparably with descending limb of QRS wave.
CHARACTERISTICS –
1. T wave inverted and cove-shaped only in lead I.
2. ST level in leads I and IV iso-electric.
3. Q_4 of lower voltage.
4. T_4 diphasic . . . . . .
5. Prominent Q wave in lead I.
CHARACTERISTICS –
1. ST level has returned to normal.
2. T wave changes have disappeared.
3. Voltage of Q_4 lower than normal.
4. Prominent Q wave in lead I often remains.
II
BASE AND POSTERIOR WALL OF THE LEFT VENTRICLE
Thrombosis of the circumflex branch of the Left coronary artery
ACUTE STAGE
CHRONIC STAGE
HEALED
CHARACTERISTICS –
1. ST interval elevated in lead III only.
2. Proximal portion of T wave merged inseparably with descending limb of QRS wave.
CHARACTERISTICS –
1. Inverted, cove-shaped T wave in lead III.
2. ST level in lead III iso-electric.
3. T wave in lead IV a little deeper than normal.
4. Prominent Q wave in lead III.
CHARACTERISTICS –
1. ST level has returned to normal.
2. T wave changes have disappeared.
3. Prominent Q wave in lead III often remains.

Fig. 2

It is well known that older people tolerate heart attacks from coronary thrombosis better than do younger people. This is due to the fact that the older one gets the greater the amount of collateral (accessory) circulation there is to the heart. It has been found that the hearts of older people have a much richer intercommunication of the blood vessels of the heart than do younger people. In this manner they are better prepared to withstand the insult of closure of a coronary artery. Proper medical treatment can still further increase

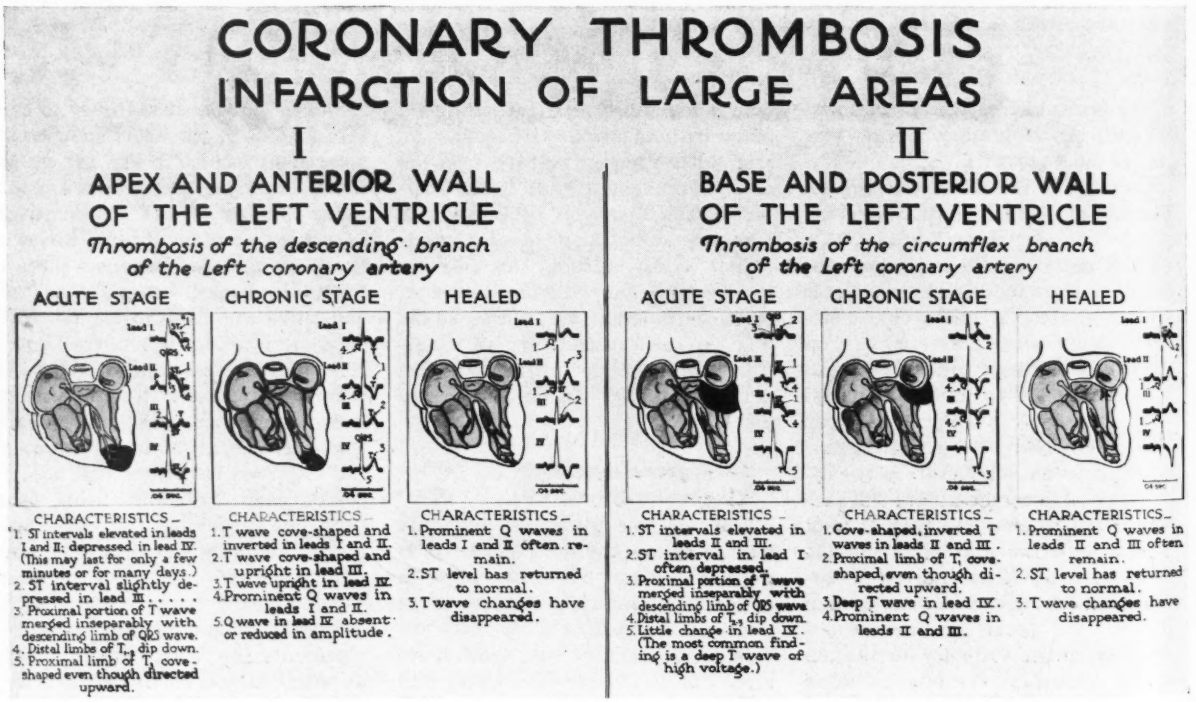

CORONARY THROMBOSIS
INFARCTION OF LARGE AREAS
I
APEX AND ANTERIOR WALL OF THE LEFT VENTRICLE
Thrombosis of the descending branch of the Left coronary artery
ACUTE STAGE
CHRONIC STAGE
HEALED
CHARACTERISTICS –
1. ST intervals elevated in leads I and II; depressed in lead IV. (This may last for only a few minutes or for many days.)
2. ST interval slightly depressed in lead III . . . . .
3. Proximal portion of T wave merged inseparably with descending limb of QRS wave.
4. Distal limbs of T_{1-4} dip down.
5. Proximal limb of T_1 cove-shaped even though directed upward.
CHARACTERISTICS –
1. T wave cove-shaped and inverted in leads I and II.
2. T wave cove-shaped and upright in lead III.
3. T wave upright in lead IV.
4. Prominent Q waves in leads I and II.
5. Q wave in lead IV absent or reduced in amplitude.
CHARACTERISTICS –
1. Prominent Q waves in leads I and II often remain.
2. ST level has returned to normal.
3. T wave changes have disappeared.
II
BASE AND POSTERIOR WALL OF THE LEFT VENTRICLE
Thrombosis of the circumflex branch of the Left coronary artery
ACUTE STAGE
CHRONIC STAGE
HEALED
CHARACTERISTICS –
1. ST intervals elevated in leads II and III.
2. ST interval in lead I often depressed.
3. Proximal portion of T wave merged inseparably with descending limb of QRS wave.
4. Distal limbs of T_{1-4} dip down.
5. Little change in lead IV. (The most common finding is a deep T wave of high voltage.)
CHARACTERISTICS –
1. Cove-shaped, inverted T waves in leads II and III.
2. Proximal limb of T_1 cove-shaped, even though directed upward.
3. Deep T wave in lead IV.
4. Prominent Q waves in leads II and III.
CHARACTERISTICS –
1. Prominent Q waves in leads II and III often remain.
2. ST level has returned to normal.
3. T wave changes have disappeared.

Fig. 3

the blood supply to the heart and provide additional help in overcoming coronary arteriosclerosis. Older people often have heart attacks as a result of coronary thrombosis in small vessels and they are attributed to acute indigestion. Even without medical care these minor attacks clear up in a month or two.

It is worth while emphasizing that medically speaking the greatest benefit is secured in the type of heart disease under discussion, when the more serious consequences, such as coronary thrombosis and heart failure due to inadequate circulation to the heart itself, are prevented. It is this condition which precedes failure of the general circulation. Consequently it is important to be able to recognize, at the earliest possible moment, signs of diminished coronary circulation. Fig. 3 shows the electrocardiogram during what I have designated as the "preliminary stage," a stage that precedes actual coronary thrombosis. Many patients show these signs together with moderate amounts of true angina pectoris. They are probably always present in some degree. When the condition is recognized in this stage a great deal can be done to prevent coronary thrombosis and consequent cardiac disability.

It is vitally important to know whether or not the heart has healed after it has been harmed by a heart attack (coronary thrombosis). When such an injury has healed the electrocardiographic tracing will show it. Figs. 1 and 2 show electrocardiograms when healing has taken place after the various regions and the different sized areas have been injured. It is important that the patient receive adequate care until healing does take place or until it is recognized that healing can go no further. Under the latter circumstance the patient must carry on his activities under a certain handicap.

Precaution in Dental Office

The presence of high blood pressure, the emotional stress and strain of living, as well as the physical strain of eating and working—all these must be taken into consideration in the care of patients with arteriosclerotic heart disease. It is important to know what to do with such a patient when he is in the dental office receiving dental care and has a mild or fleeting attack of angina pectoris. This attack may be due to a coronary thrombosis of high or low grade, or it may be merely a slight attack of angina pectoris resulting from the emotional stress and strain attending even the most insignificant type of dental care. It is advisable to consider the patient in the light of the severity of the attack as well as in the light of the duration of time the patient has been having attacks. It is also advisable to consider the frequency of such attacks. If previous attacks have been of a serious nature, subsequent attacks as a rule are still more serious. Frequent previous mild attacks would probably mean that the present attack would also be mild, but it must not be forgotten that there must always be a first time for a severe attack.

First Aid in Dental Office

For severe first attacks it is imperative that the patient be put at complete rest at once. The patient should either remain sitting or lying down according to the position in which he is more comfortable. He should not be permitted to walk back and forth as many of them wish to do in severe attacks. A physician should be called to advise with regard to immediate medication and the manner in which the patient should be transported from the office, as well as with regard to whether the patient should be sent to his home or to a hospital. While awaiting a physician, and for mild or transient attacks, aromatic spirits of ammonia or a drink of whiskey is often efficacious. A tablet containing 1/200 grain of nitroglycerin, placed under the tongue, should be tried if other measures fail. Under all circumstances it is best to terminate the dental treatment at hand at the earliest possible moment and have the patient return for treatment when danger of an attack has passed.

A final word might be said about the use of adrenalin, neo-synephrin, or ephedrin and other blood vessel constrictors in conjunction with the type of local anesthetic used. It would be good judgment to ask every patient more than 45 years of age whether or not he has had high blood pressure, kidney disturbance or anything like heart attacks before adrenalin-like substances are administered. It is known that these drugs may precipitate a heart attack. Such attacks may account for some of the "reactions" that occur in the dental chair. A simple history of previous heart conditions or a telephone call to the patient's physician will often reveal contra-indications for the use of adrenalin-like substances and thereby will greatly reduce the incidence of patients having heart attacks or dying in the dental chair.

122 *South Michigan Avenue.*

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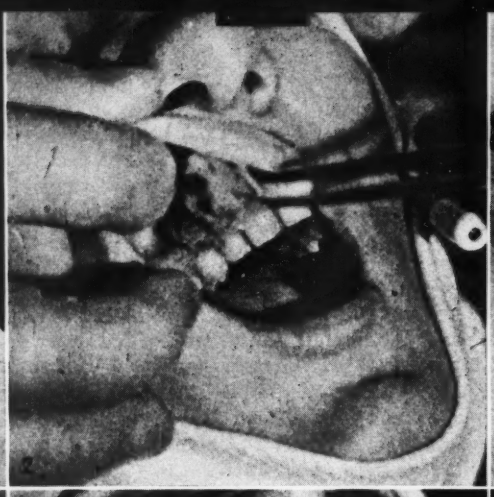
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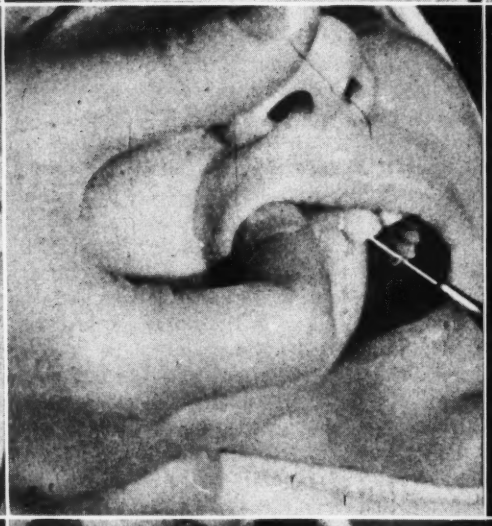

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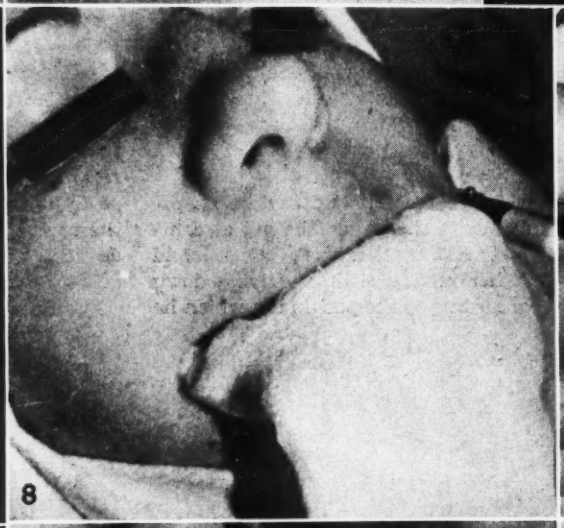
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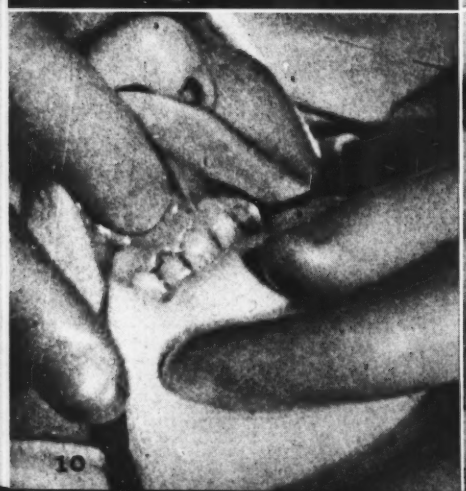
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12

Technique for Apicoectomy

P. PHILIP GROSS, D.D.S., Philadelphia

APICOECTOMY MEANS the excision or amputation of the apex of a root and the eradication of the diseased periapical tissue. This operation should never be performed unless conditions are ideal and promising. The success of operators in performing apicoectomies depends on their selection of suitable cases; that is, cases in which

Procedure:

Fig. 1—Draping the patient.

Fig. 2—Swabbing of mucous membrane with a solution composed of:

Potassium iodide .....48 grains
Iodine crystals .....24 grains
Oil of wintergreen .....24 minims
Glycerin....q.s.a.d. .... 8 ounces

The use of a swabbing solution is routine for any oral operation.

Fig. 3—Palpating to determine anatomic landmarks preparatory to making infra-orbital injection.

Fig. 4—Infra-orbital injection. The size of the area to be operated on determines the type of injection—whether infra-orbital, as shown here, or supraperiosteal (Fig. 5).

Fig. 5—Supraperiosteal injection. Injecting before opening tooth permits anesthesia to become deep and profound for incision and excision steps of operation.

Fig. 6—Tooth is opened. Diagnostic wire inserted to determine proper length of root. Roentgenogram taken to determine position of wire.

If the tooth is not sore or painful to touch, it is let alone until time of operation. If there is soreness, the tooth should be opened a few days prior to operation to allow soreness to subside. Never operate on a sore tooth.

Fig. 7—The tooth is mechanically cleansed and sterilized by any method the operator prefers. The root canal is filled with a gutta-percha point with a paste composed of zinc oxide, eugenol, and aristol carried to and through the apex.

It does not matter how far beyond the apex the root canal filling is pushed, as this can all be removed later during the operative procedure. When there is a continual seepage from the canal during the cleaning process, push a piece of gutta-percha to the end of the root and seal the apex. Then, clean the canal from that point.

The tooth is now filled with cement, to be finished with permanent filling later.

Traumatic occlusion is relieved by slightly grinding the tooth out of occlusion. This tends to relieve soreness of tooth after operation.

The tooth is now ready for operative steps of apicoectomy. Anesthesia is profound by this time.

Fig. 8—Sterile gauze is placed between the teeth, and the patient is instructed to close. The patient is able to swallow with mouth closed and the operator is not annoyed with the patient's continuous need to expectorate.

Fig. 9—Area is completely swabbed with the swabbing solution described in the legend to Fig. 2.

Fig. 10—Lip is retracted. Draw soft tissues tight by pressing mucosa against bone. This makes incision easier to execute. Outline of finger acts as line of incision. Line of incision is midway between apex of root and gingival border.

Fig. 11—Incision. A semilunar incision, about three fourth of an inch, is made over the root, with convexity toward crown. Blade is carried through mucoperiosteum to bone. Flap will give full view of field and will not collapse.

Fig. 12—Flap is loosened with a periosteal elevator.

Fig. 13—Flap held up with retractor. Aspirator used to keep field dry. In old, chronic cases, bone appears soft after flap is raised; in other cases, bone appears normal.

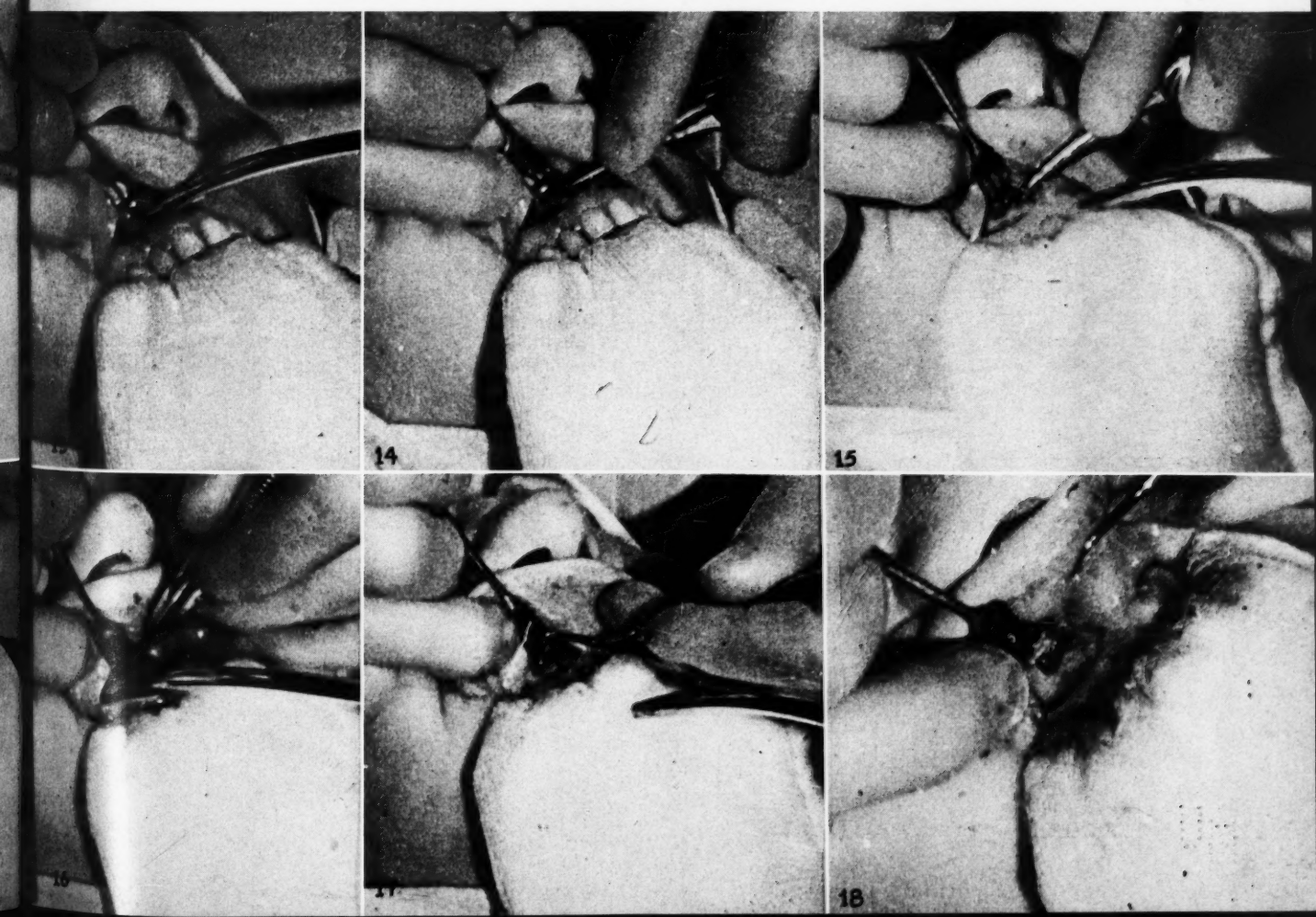
Fig. 14—By means of a chisel or a gauge, the bone overlying the root is removed. Keep well toward the apex, because the cut end of the root and the bone should be flush.

Fig. 15—After root is exposed, a solid table of bone still remains for final suturing.

Fig. 16—The root being exposed, the apex is excised by means of a fissure bur. Guard against injury to adjacent teeth. Apex is now removed by means of a narrow flat instrument.

Fig. 17—Apical area is carefully curetted and all débris removed. Root is smoothed and area swabbed with a mild antiseptic.

Fig. 18—Exposed area cleansed.



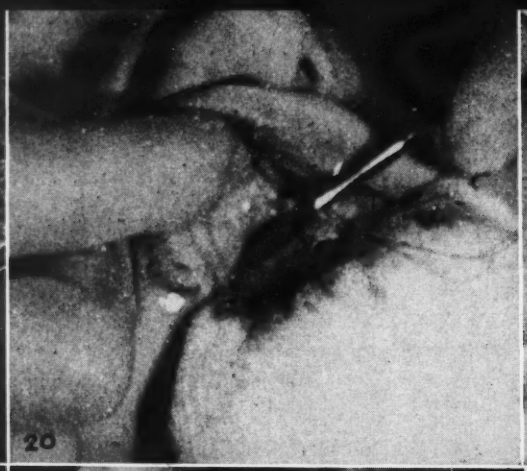


Fig. 19—Close-up of exposed area, showing root apex and bone flush with each other; also, showing solid table of bone for replacement of flap.

Fig. 20—Mucoperiosteum still attached at lower edge is slightly raised to allow needle to engage mucoperiosteum for suturing.

Fig. 21—Slight bleeding is whipped up by gently raising around flap. Flap sutured.

Fig. 22—Postoperative roentgenogram.

Premedication: Acetylsalicylic acid, 10 grains at time of injection; 5 grains to be followed every two or three hours if pain persists.

After operation patient is instructed to apply ice pack over area for ten minutes at ten minute intervals, four or five times.

Catgut sutures are used and are easily removed on fourth or fifth day. The stiffness of other suture material causes soreness and decubital ulcers under the lip.

Fig. 23—Roentgenogram taken three months after operation.

Fig. 24—Roentgenogram taken six months after operation.

the prognosis is favorable. Apicoectomy is contra-indicated in all cases in which general health and vital resistance of the patient are low, or in which the retention of a devitalized tooth is contra-indicated.

The upper six anterior teeth and the lower incisors are the most favorable sites for apicoectomy. Best results will be obtained when (1) less than one fourth of the root is involved; (2) when the tooth is not loose; (3) when there is little or no destruction of the periodontal membrane or the alveolar process from the gingival side; (4) when all conditions are eliminated which might bring about a recurrence of apical infection. This precaution is imperative regardless of past treatment.

The entire operation is performed at one sitting, and the first step is to reopen all old root canal fillings in infected teeth and begin the technique from that point.

6740 *Torresdale Avenue.*

The Editor's Page

HAROLD K. BOX OF TORONTO is favorably known throughout the dental world for his research on periodontal disease. In a recent publication[1] he has turned his interest to studies on dental caries. Every clinician has observed that caries appears to elect certain tooth surfaces (the labial and buccal areas, occlusal pits and fissures, and the proximal surfaces below the contact point), whereas the lingual surfaces of all the teeth, except where there are structural defects, and the lower anteriors are resistant to attack. There is nothing in the structure of the tooth that explains these phenomena of susceptibility and immunity; the lingual surfaces are no better calcified than other surfaces. Nor is there any good reason why bacteria would be more destructive in their attack on one tooth surface than on another unless the environmental condition were different. Box believes that environmental conditions as expressed by the chemical reaction of the saliva are different: the tooth surfaces that border the vestibule of the mouth are bathed in parotid saliva which is acid in reaction in 89 per cent of cases; the tooth surfaces that are in the oral cavity proper (the lingual) are bathed in the saliva from the submaxillary and sublingual glands. This saliva is alkaline in 44.5 per cent of cases. Box reached the conclusion, therefore, "that it seemed reasonable that acid parotid saliva had some etiologic relationship with cervical caries in the vestibule."

The presence of acid is never encountered in the mouth in sufficient concentration to cause a direct dissolution of enamel. The acid saliva plus a pabulum of starch plus bacteria constitute the triumvirate of local conditions that produce caries. The presence in excessive amounts of any one of the three factors could be expected to accelerate the caries process. A hyperacidity of saliva resulting from metabolic factors, the presence of sugar in excessive amounts, a mouth teeming with acidogenic bacteria—these are the conditions under which we expect to find tooth decay. The interrelationship between these three local factors are not clearly understood at the present time: how much acid, how much sugar, how many bacteria are necessary to produce tooth decay? These are quantitative questions which at our present level of knowledge we cannot answer.

Box concludes that there are five conditions which produce an environment conducive to the initiation of dental caries:

1. The presence of amylopectin (a starch resistant to dissolution in water) and starch hulls on the tooth surface.
2. A saliva poor in the liquefying enzyme, amylase.
3. A reduced volume of saliva and therefore reduced conditions for hydration and solution as well as impaired enzymatic breakdown of the starchy débris.
4. Fairly acid reactions of the saliva with poor liquefying activity.
5. A protective covering over the starchy débris (such as soap from dentifrices and mucin) which prevents the action of the liquefying enzyme.

If the conditions suggested by Box are the ones that produce tooth decay, what are we going to do about it? The nature of the problem does not suggest the possibilities of drug therapy of any kind except possibly to curtail the action of acid-forming bacteria. There are still two factors left: an acid saliva, poor in enzymic action or reduced in volume; and the presence of excessive amounts of sugar.

We return once again to the starting point of all discussions on the subject of tooth decay: It is a complex disease which expresses itself with local lesions but the underlying factors are deeply rooted in metabolism and biochemistry. Dentists working alone—applying drugs, scaling and polishing teeth, operating on the local lesions of caries—will never make a conquest of the disease. The *mores* and habits of society with respect to physiology and dietetics must be changed.

Who can say that that isn't a stupendous undertaking?

[1]Box, H. K: A Liquefying Amylase in Human Saliva, Amylopectin, and Dental Caries, Bulletin 24, The Canadian Dental Research Foundation, December, 1938.

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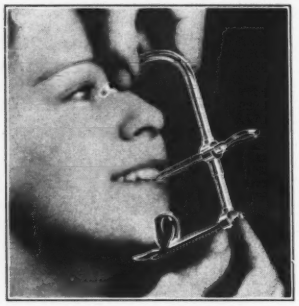

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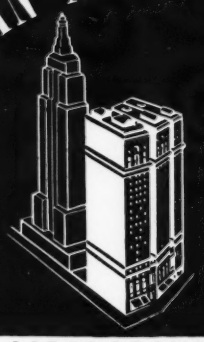
NOTES ON THE *Cuff*

January 24: If you are a lecture-goer, you will probably concede that the country is surfeited with lecturers speaking on the arts and sciences, giving behind-the-scenes views in news and personalities, and conducting vicarious travel tours through the world. Most of us are particularly fearful of a lecture that is announced as one on the health subject, because health lecturers are usually drearily dull in their boasts of how they got that way, or spill over with the jargon of the laboratory. I have had the experience several times recently of speaking before public groups of various kinds and have always accepted with trepidation. I know that the Bands of Retzius, the structures in the mandibular fossa, and the theory of elective localization of bacteria are soporific subjects to audiences. But people are interested in health. They either have it, and should want to keep it, or they have lost it and want to get it back. We know that there is some relationship between the teeth and one's life. We know that the dental story can be told dramatically, simply, and in analogies that are understandable to any intelligent person.

In approaching the public, the point of emphasis, it seems to me, should be that dental caries is a disease, and not some mere physical change in the continuity of the tissue, produced by nonpathogenic forces. In appearing before the public in such speech-making, the surprising thing that one observes is that people are vitally interested in their dental mechanisms and that given an opportunity for discussion, they will ask many interesting and penetrating questions.

For the sake of the serenity of one's colleagues in practice, it is probably best not to speak in one's own community. It is always better to invite a dentist from the outside to give speeches before lay groups. Then the danger of being accused of horn-blowing and business-promoting is less. It should be easy to develop ex-

IN NEW YORK



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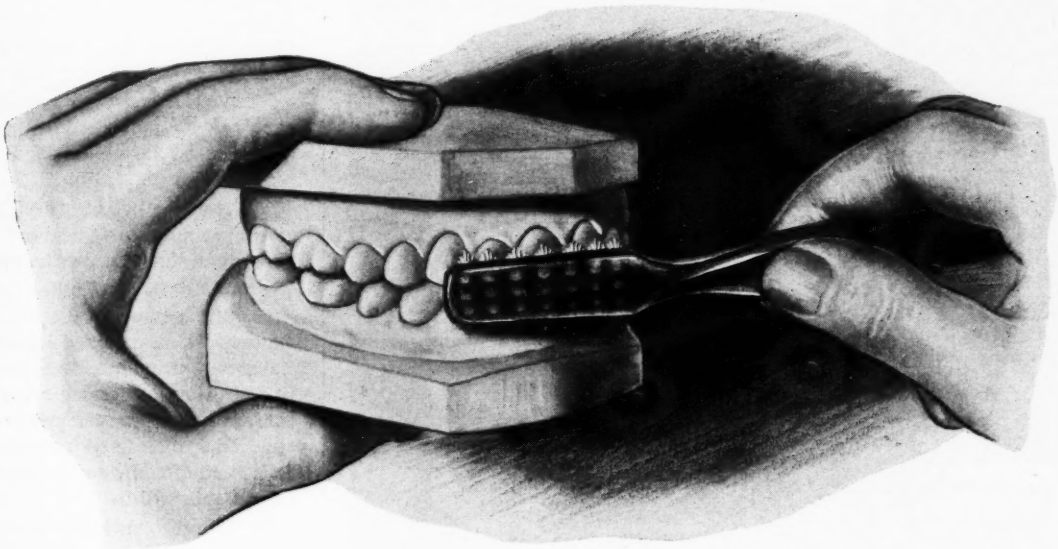

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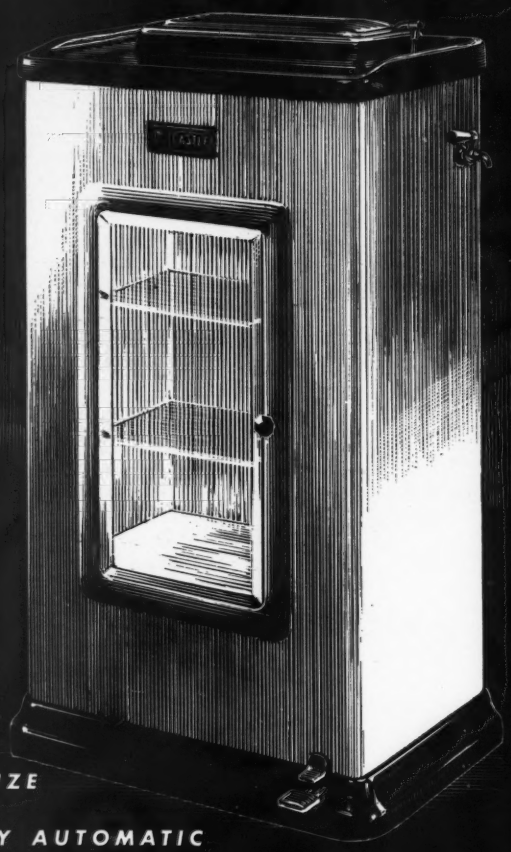

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change speakers in the dental field. The dentists in community A might import a dentist from community B to speak before the Parent-Teacher Association, for example, and community B might invite a speaker from community A to speak before one of its lay groups. People are more likely to listen attentively to imported speakers than to their own townsmen and neighbors. The old "prophet without honor" idea.

January 30: Doctor John Berberellis of Athens, Greece, reports on the preventive program carried on at the Junior Red Cross Dental Clinic of Athens and the conclusions of the Red Cross based on the material collected over a period of three years:

"1. A staff must be specially educated in a model pediodontic clinic which must be established for this purpose.

"2. The practice of preventive dentistry which must begin from the third year of age cannot be performed without special training.

"3. This pediodontic clinic must be financially maintained by social donations inasmuch as the State is not in a position to support it. Every pupil presenting for treatment should be charged a small fixed fee except in the case of admittedly poor patients when treatments will be free.

"4. The records kept for the examination and treatment for each pupil should be standardized—of the same type in the whole of Greece, so that the work of the dentist might be readily checked and understood and the statistical compilation regularly and conveniently accomplished.

"5. In order to obtain absolute preventive dentistry, it is not possible to limit the service to the dental chair. This is considered a secondary factor, the primary factor for the attainment of preventive dentistry among the pupils being the education and propaganda in different ways, as follows: (a) group training in toothbrushing; (b) the supplying of proper dental brushes; (c) moving pictures about mouth hygiene, and (d) competitive award of prizes."

February 3: A professor of medicine of Vanderbilt University has written a disquieting article on the subject of syphilis. Doctor Hugh J. Morgan points out the frequency of asymptomatic syphilitic infections. He emphasizes that in a considerable number of persons "syphilis may be ac-

quired without ever exhibiting signs or experiencing symptoms of the acute stage of the infection." Morgan believes that in the population there are large reservoirs of unrecognized syphilis, acquired without the classical clinical signs of chancres, mucous patches, secondary rashes, and so on. In fact, he believes that these masked cases are more destructive and carry a greater threat to the cardiovascular and nervous mechanisms than do the cases in which the infection was ushered in with dramatic reactions of the skin and mucous membranes. Morgan believes that the horrible sequelae of syphilis are greater in persons who have been infected without the primary and secondary clinical signs. Dentists who are exposed to syphilis about the mouth, every day in their work, should heed Morgan's warning with particular attention. The only sure protection, of course, is periodic serologic tests.

February 17: One returns from a large dental meeting, such as the Midwinter Meeting of the Chicago Dental Society with a head full of conflicting ideas and cuffs full of notes, some of which are not decipherable. Here are a few of the things I meant to mention: At the State Officers Conference held at the Knickerbocker Hotel before the Midwinter Meeting opened, Paul Jones of Rochester, New York, president of the New York State Dental Society, offered the sensible suggestion that recalcitrant membership in dental societies can best be sold through wives; that if the membership committee calls on the wife and sells her on the idea of membership for her husband, it won't be long before the membership is applied for and the transaction is completed.

At this same Conference, a dentist from Paris was asked to respond to an introduction. He did so graciously enough and in the course of his remarks said, "I would like to see you all in France very soon." A voice well submerged in the audience asked, "Just how do you mean that?"

Lloyd Wright of St. Louis, the Isaak Walton of the Ozarks, expressed his ennui and his fatigue by indicating that he expected to go to Florida after the meeting to fish in "obsolete lakes."

Dave McLean of Los Angeles in his scholarly talk on the Evolution of the Dental Mechanism indicated that we have developed from fish and not from apes. This, he believes, may ac-

(*Continued on page* 116)

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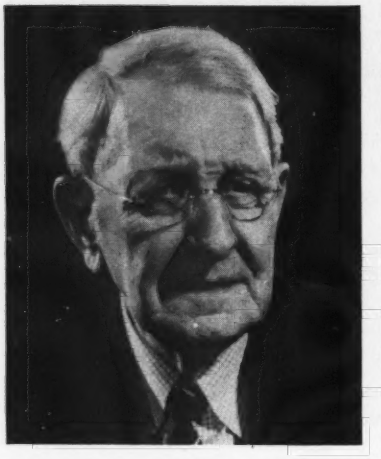

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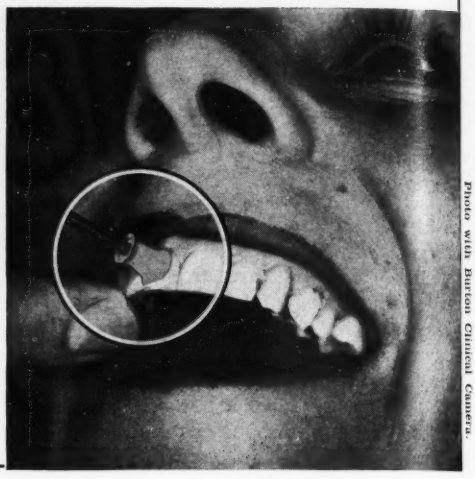


Photo with Burton Clinical Camera.

(*Notes on the Cuff—Continued*)

count for some of our present-day behavior.

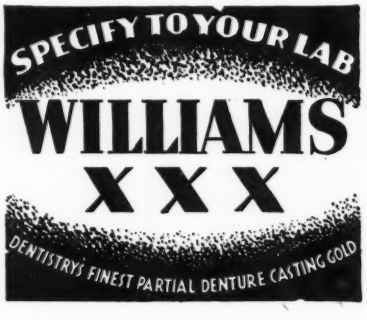
William R. Davis of the Michigan State Department of Health, speaking before the State Officers Conference, aptly called the outmoded dentistry still practiced in some quarters, "Rip Van Winkle" dentistry.

Here is a note about a researcher on the acrylic resins, who pulled from his pocket a beautiful pink life-like block of material. This potential researcher asked me, "Do you know how this will stand up under the alcohol test?" I pleaded ignorance. He said, "As soon as I get home, I am going to saw this block into five or six pieces and test it in several different strengths of whiskey. In this day and age, no manufacturer should be allowed to produce a new denture material unless it has stood up under the liquor test."

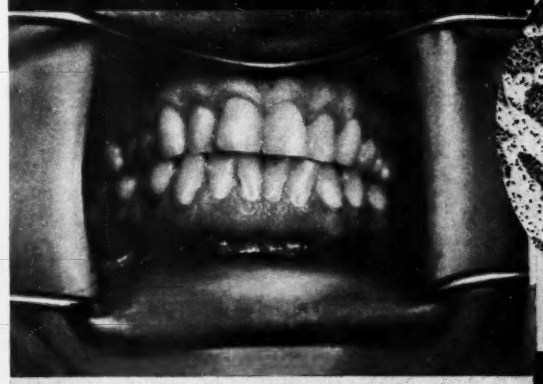
The prize note and the last one on the laundry list is contributed by my friend and colleague, the publisher of this magazine, Mass. In describing an elfish, emaciated, gnome of a lad, it is Mass who said, "He looks like something that came out from behind the wallpaper."—E. J. R.

DENTAL MEETING *Dates*

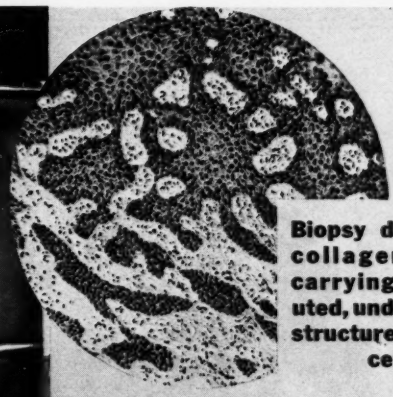
Pennsylvania State Dental Society, seventy-first annual meeting, Yorktowne Hotel, York, Pennsylvania, May 2-4.



"CHEWY" DIET DID THIS



Gingival tissues well hornified. "Chewy" diet used persistently.



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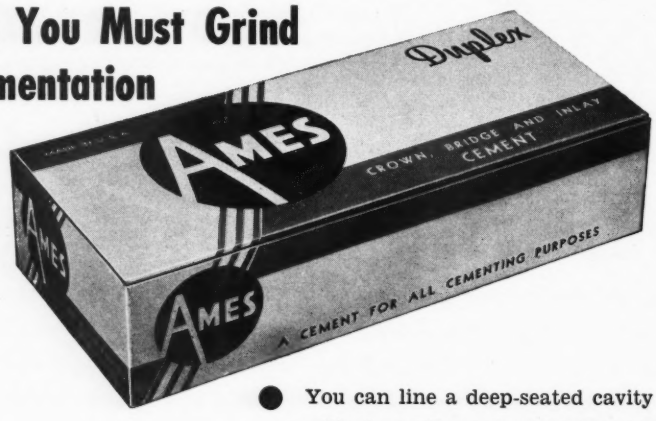

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Southwest Dental Assistants Association, regular meeting, Oklahoma City, Oklahoma, April 24-28.

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Southwest Dental Assistants Congress, eight states meeting, Oklahoma City, Oklahoma, April 24-28.

•

Pennsylvania State Dental Society, seventy-first annual meeting, Yorktowne Hotel, York, May 2-4.

•

Tennessee State Dental Association, annual meeting, Hotel Hermitage, Nashville, May 8-11.

•

Dental Society of the State of New York, seventy-first annual meeting, Hotel Pennsylvania, New York City, May 9-12.

•

Georgia State Dental Association, seventy-first annual meeting, Partridge Inn, Augusta, Georgia, May 15-17.

•

Indiana State Dental Association, annual meeting, Claypool Hotel, Indianapolis, May 15-17.

•

New Jersey State Board of Dental Examiners, annual meeting, June 26-30. Applications must be filed prior to March 15. For information write to Walter A. Wilson, D.D.S., 148 West State Street, Trenton, New Jersey.

•

Florida State Board of Dental Examiners, annual examination, Seminole Hotel, Jacksonville, commencing June 26. Preliminary applications must be filed sixty days prior to date of examination. For information write to H. B. Pattishall, D.D.S., 351 St. James Building, Jacksonville.

•

North Dakota State Board of Dental Examiners, regular meeting, Gardner Hotel, Fargo, July 10-13. Applications with necessary fee must be in the hands of the secretary at least ten days prior to date of examination. L. I. Gilbert, D.D.S., 401 Black Building, Fargo, North Dakota.

•

American Dental Society of Europe, annual meeting, Lausanne, Switzerland, August 7-9.